Australasian Health Facility Guidelines

Part B - Health Facility Briefing and Planning

0390 –Neonatal Care Unit

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Australasian Health Facility Guidelines

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01 INTRODUCTION

1.1 PREAMBLE

This Health Planning Unit (HPU) has been developed by the Australasian Health Infrastructure Alliance (AHIA). This revision has been informed by an extensive consultation process during 2019 which included clinical experts and consumer representatives.

The document is intended to be used by design teams, project managers and end users to facilitate the process of planning and design. It is recommended that consumer representatives are involved in the planning and design process for neonatal care facilities.

1.2 INTRODUCTION

1.2.1 General

This document should be read in conjunction with AusHFG generic requirements including Standard Components described in:

- Part A: Introduction and Instructions for Use;
- Part B: Section 80 - General Requirements and Section 90 - Standard Components;
- Part C: Design for Access, Mobility, Safety and Security; and
- Part D: Infection Prevention and Control.

Broadly, the provision of care to newborns ranges from community hospitals providing services to women with uncomplicated pregnancies to large metropolitan hospitals offering neonatal intensive care facilities. This HPU is focussed on neonatal care units providing neonatal intensive care, high dependency care and/or low dependency care as part of a perinatal service or children's hospital.

Facilities associated with babies cared for on a maternity unit, generally babies with a gestational age of 37 weeks or over, are outside the scope of this HPU. Paediatric Intensive Care Units (PICU) may also care for newborns, where access to sub-specialty services is required, and are included in HPU 360 Intensive Care Unit.

1.3 POLICY FRAMEWORK

Prior to undertaking a project, planners and project personnel are encouraged to familiarise themselves with individual state and territory specific policies (as detailed in the Further Reading section of the Appendices), and with the following publications:

- Paediatrics & Child Health Division, RACP, 2008, Standards for the Care of Children and Adolescents in Health Services;
- Report of the Eighth Consensus Committee for NICU Design, 2013, 'Recommended Standards for Newborn ICU Design', Journal of Perinatology. October 2013 33, S2-S16.; and
- European Standards of Care for Newborn Health https://newborn-health-standards.org/.

This HPU reflects the significant volume of evidence regarding the improvement in neonatal health outcomes associated with unit designs that optimise family integrated care models.

1.4   DESCRIPTION

1.4.1   Model of Care

Neonatal care services are normally organised across a health jurisdiction in a 'hub and spoke' arrangement to ensure that the catchment population has access to both locally provided services and highly specialised services provided by tertiary hospitals, e.g. intensive care. Children's hospitals provide subspecialty services including neonatal surgery and care for complex congenital and metabolic conditions.

Neonatal care units provide a range of services including care of low birth weight and/or premature infants, and/or infants born with congenital conditions or other problems that may compromise health and survival.

The care of newborns is provided by a multidisciplinary health team through a 'family integrated care' model and is based on the following key principles:

- the physical, psychological and social needs of both the infant and their family are at the 'heart' of all care given;

- parents have unlimited access to their newborn infant and are active participants in their care. This includes removal of any restrictions to parent access to provide them with choice and control over when they need to attend to and care for their infant;

- early and continuous skin-to-skin contact between mother or father and the newborn infant when clinically appropriate and support for breastfeeding;

- protection of the infant from negative environmental stimuli and access to positive sensory stimulation from parents and other caregivers;

- provision of a range of support strategies and education for families. This incorporates education to support parents as part of the integrated team providing care for the infant rather than passive visitors; and

- the provision of culturally appropriate care.

Evidence supports family integrated care models given it contributes to a reduction in length of stay, improved breastfeeding rates, reduced readmission rates and improved neurodevelopmental outcomes. Refer to:

- Ortenstrand, A., Westrup, B., Berggren Brostrom, E., Sarman, I., Akerstrom, S., Brune, T., Lindberg, L. and Waldenstrom, U., 2010, 'The Stockholm Neonatal Family Centered Care Study: Effects on Length of Stay and Infant Morbidity', Pediatrics, 125 (2), pp. 278-285; and

- Lester BM, Salisbury AL, Hawes K, Dansereau LM, Bigsby R, Laptook A, et al. 2016, '18-Month Follow-Up of Infants Cared for in a Single-Family Room Neonatal Intensive Care Unit.' Journal of Pediatrics, 2016 October, 177: pp. 84–9.

Specialised neonatology input may begin in the antenatal period with the planned management of birth where neonatal abnormality or illness is expected. The model of care promotes the birth of a baby in a location where it will receive timely access to the required level of care to minimise the risks of transporting extremely preterm infants.

Most health jurisdictions provide statewide newborn retrieval and transfer services. These services provide expert clinical advice, clinical co-ordination, emergency treatment and stabilisation, and inter-hospital transport for very sick newborns. This service complements the local retrieval role provided by most neonatal care services, e.g. on-site.

Neonatal services also provide follow-up and ongoing care after discharge. This ranges from planned follow-up clinics to ad-hoc service provision where parents may 'drop-in' when problems arise. Specialised nursing and allied health staff are often required to support these services, e.g. discharge planning, lactation, and home support.

1.4.2   Level of Service and Service Capability

The following broad terms are used within this HPU, rather than numerical role delineation levels, to avoid confusion associated with variations between jurisdictions. These terms are reflected in the Schedule of Accommodation (Appendix 5.1) and the associated Standard Components. However, project teams should ensure the planning and design approach aligns with the specified role delineation as defined by the relevant local jurisdiction.

Intensive Care and High Dependency Care

Neonatal intensive care and high dependency care are provided in discrete, environmentally controlled units that are designed, equipped and staffed to care for premature, medically unstable or critically ill newborns that require continuous respiratory support or other intensive interventions. Key service requirements include:

- comprehensive neonatal care for all newborns within a multidisciplinary management model;

- full range of respiratory support (including invasive and non-invasive ventilation), invasive blood pressure monitoring, therapeutic hypothermia, total parental nutrition and exchange transfusion;

- access to point of care testing equipment capable of instantly measuring blood gases, electrolytes, bilirubin and haemoglobin;

- access to 24-hour medical imaging including general x-ray, neonatal echocardiography, cranial ultrasonography and MRI; and

- specialist state wide services will provide neonatal surgical services and care for complex congenital and metabolic diseases of the newborn. These may be provided within a children's hospital or in a perinatal unit collocated with a children's hospital.

Low Dependency Care

Low dependency care caters for newborns requiring less care and supervision but who are not sufficiently stable to be discharged. Key service requirements include:

- continuous cardiorespiratory monitoring including non-invasive blood pressure monitoring;

- short term continuous oxygen therapy and respiratory support. Humidified high flow nasal cannula (HHFNC) oxygen and/or continuous positive airways pressure (CPAP) may be provided in low dependency care units with appropriate training, staffing provision and support from intensive care units;

- initiation and maintenance of intravenous therapy;

- ongoing care for newborns who have stepped down from intensive care / high dependency care; and

- newborns requiring stabilisation prior to transfer to a neonatal intensive care service.

02 PLANNING

2.1 OPERATIONAL MODELS

2.1.1 Overarching Operational Models

Overarching operational models include 'infant-centred' and 'family integrated care' models while facilitating the work of staff.

Infant-Centred

The Neonatal Unit must:

- meet the early attachment needs of newborn infants and optimise bonding time with both parents;

- support the changing needs of newborn infants as they grow and develop;

- promote optimal newborn growth and development by attention to noise reduction, light and temperature control; and

- minimise the risk of adverse occurrences, especially infection.

Family Integrated Care

Parents and other family members play a pivotal role in the care of the newborn and therefore the Neonatal Unit must provide:

- a welcoming environment;

- support for parents to stay with the child as much as possible including overnight within the bay / room or in close proximity to the unit (this assists in reducing stress and anxiety and improving confidence and breastfeeding success);

- adequate space and amenity for families at the bedside to care for their infant, provide kangaroo care (skin to skin contact) and breastfeed / express breast milk including support for the mother to express in a private space or at the bedside;

- sufficient access for a mother to be transported on a bed to the infant following delivery if required;

- privacy for families with an extremely ill or dying infant;

- facilities to support care-by-parent models prior to discharge (rooming in or transitional care);

- education for families, empowering them to become active participants in the care of their infant;

- support for families to congregate and engage with each other; and

- access to appropriate amenities for families within the unit including food, drink, toilets, showers, desk space and outlets for recharging of mobile devices.

Support for Staff

The unit design will provide an optimal working environment for staff and include:

- a pleasant and supportive working environment;

- optimal line of sight to other staff and ability to communicate with other staff;

- good access to and observation of patients;

- flexibility in staff allocation and work practices;

- involvement of the multidisciplinary team;

- appropriate information technology and communication systems;

- continuing education and training facilities; and
- adequate staff support space including staff work areas and amenities.

2.1.2 Workforce

The staff establishment will be dependent on the level of service / role delineation and the unit size. Staff may include:

- medical staff (clinical director, fellows, consultants, registrars and junior medical staff);
- nursing staff (NUM, clinical nurse consultants, clinical nurse educators, nurse practitioners, clinical nurse specialists, lactation consultants, discharge liaison staff, home care nurses);
- allied health staff (social workers, aboriginal liaison officers, speech pathologists, psychologists, pharmacists, newborn hearing screeners, sonographers, physiotherapists and occupational therapists);
- technical support staff include biomedical engineers;
- educators and researchers;
- clerical / administrative staff (ward clerk, secretary, data collectors);
- ancillary (patient assistant) and other operational support staff, cleaners;
- volunteers; and
- students.

The design, layout and configuration of the unit should support the planned nurse to patient ratios. These ratios will be determined by senior medical and nursing staff according to the individual newborn's condition and need, and access to monitoring systems.

Provision of staff work areas will depend on the staff establishment and the need to be located in / near the unit and will comply with jurisdictional policies.

2.2 OPERATIONAL POLICIES

2.2.1 General

Operational policies have a major impact upon the planning and design and capital and recurrent costs of health facilities.

Project teams should review their design proposals with these in mind and be able to demonstrate that the capital and recurrent cost implications of proposed operational policies have been fully considered. Operational policies may have hospital-wide application or be unit-specific. A list of general operational policies that may apply can be found in Part B: Section 80 General Requirements.

2.2.2 Hours of Operation

The unit will operate 24 hours per day, seven days per week.

Emergency admissions will be received from the delivery suite, operating suite, post-natal units, emergency department or via external retrieval as 24-hour readiness for admissions is essential.

Parents will generally have unrestricted access to the unit. Depending on local operational guidelines siblings and other family members may visit and/or stay within the unit.

2.2.3   Resuscitation

Resuscitation of newborns in incubators may be carried out in-situ. Even so, it may not be ideal in a multi-bed room with infants in bassinets. Therefore, each nursery should have ready access to resuscitation facilities, either fixed within a dedicated resuscitation space, i.e. procedure room, or via a mobile resuscitaire.

Equipment should include an open radiant-heated bed with facilities including oxygen, medical air and suction, power outlets, saturation and cardiac monitoring, laryngoscopes, equipment for assisted ventilation, secure drugs storage and video camera. It is important that unobstructed line of sight is provided to resuscitation facilities and staff can readily summons assistance as required.

2.2.4   Newborn Retrieval and Transfers

As all units will undertake intra-hospital transfers, provision must be made for storage and recharging of this equipment.

For those units where an external retrieval and back transfer service is an integral component of the Neonatal Care unit, spatial and design requirements will depend on:

- the size of the team and its relationship to neonatal care staff, i.e. whether there is a separate team dedicated to transport;

- the role of the team;

- the need for administrative (including a computer for data entry) and education space;

- the amount and type of equipment, including clothing;

- the extent of the communication system;

- parking arrangements for dedicated vehicles; and

- access to the emergency vehicle bay and/or helicopter landing site.

It is recommended that project teams consult with local retrieval services to ensure optimal facilities are provided for the safe and efficient stabilisation of an infant by the retrieval team. An area or room of sufficient size is required to support the workings of the team. This may be provided through an appropriately sized procedure room or 2 bed bay that can be flexibly used to accommodate the one infant when required for this function. This area should be located close to the staff station for ease of access to support when required.

Telemedicine is commonly used to augment the emergency consultation and retrieval process and will require consideration of optimal camera positions to support these services.

2.2.5   Neonatal Procedures

Children's hospitals will perform neonatal surgery in the operating suite. However, some perinatal and surgical neonatal intensive care units may perform selected procedures in the unit as unstable newborns are not able to be moved safely. In selected cases, a neonatal room is sized and equipped to undertake surgical procedures.

A common procedure conducted in neonatal intensive care units is laser therapy for retinopathy. A quiet and dark space is required and is commonly provided within a procedure room equipped with relevant lighting, medical gases, equipment, power supply, laser screening and in-use warning lights. In smaller units, an isolation room may be equipped for this purpose.

2.2.6   Palliative Care

When a life limiting condition is diagnosed, family oriented, multidisciplinary, neonatal palliative care is essential to optimise quality of life for the infant and the family. Parents should be allowed to stay with their infant at all times in a setting that meets their wishes and spiritual needs.

Consideration should be given to the provision of a family bereavement area including a neonatal care room that is appropriately designed to manage end of life care; a collocated space to accommodate parents with consideration of cultural requirements; and discreet access for additional family members.

2.2.7 Lactation, Milk Preparation and Storage

Infants may receive nutrition through breast milk from their mother, formula, donor human milk and/or parenteral nutrition.

Breast Milk

Space at the bedside and a dedicated feeding room will be available to support mothers who are breastfeeding or expressing. The room can serve as an area where mothers can get to know each other and to support cultural practices. Privacy should be assured for mothers who are breastfeeding or expressing.

Milk Preparation and Storage

A preparation room will be required to make up feeds including additives to breast milk and formula. Many services, including most children's hospitals, will provide a centralised milk preparation service.

The storage of milk in refrigerators and freezers must align with local policies, including the processes for thawing frozen milk. The product needs to be stored in a way that makes each newborns milk supply easy to identify and reduces the risk of being mixed-up with other supplies.

Parents will also need access to a utility space to clean, store and sterilize equipment such as breast pumps. It is assumed that bottles and teats will be single-use items provided by the unit.

Donor Human Milk

Donor human milk services (otherwise known as 'milk banks') provide a service that collects, screens, tracks, processes and dispenses human milk donated by nursing mothers. Planning teams should investigate local policies in relation to milk banking to assess if there are operational and facility impacts. Most units will require storage for donated breast milk, however given donor human milk services are usually provided as a state wide, specialised service, facility requirements relating to the processing and dispensing of donated breast milk have not been considered in this HPU.

2.2.8 Neonatal Follow-Up and Ambulatory Care Services

Neonatal Care Units routinely provide follow up outpatient services. Services may include reviews for ad-hoc attendances following discharge, growth and development clinics that incorporate multidisciplinary team reviews and other general outpatient clinics.

Multifunction consult room(s) located close to the Neonatal Care Unit entrance, but well away from the sights and sounds of the nurseries, may be useful for ad-hoc attendances to enable staff to remain in close proximity to the unit.

The location of ambulatory care facilities required for other outpatient clinics will depend on the projected activity and the need to access other support services such as specimen collection, audiology, physiotherapy and developmental psychology assessments. Rooms should accommodate the family and members of the multidisciplinary team and are generally larger than general consultation spaces. Entry doors will accommodate double prams.

2.2.9 Pathology

Point-of-care testing is required with the most common equipment used being blood gas analysers and blood glucose testing.

A bay for a pneumatic tube station will routinely be provided.

2.2.10 Imaging Procedures, Processing and Viewing

Mobile x-ray and ultrasound machines will be accommodated in the unit in a dedicated bay. Standard power outlets will be required for recharge.

Digital medical imaging and PACS is assumed and viewing may occur at the bedside, staff station and other areas as nominated.

2.2.11 Storage

A range of storage is required to support a Neonatal Care Unit and will be related to the size and complexity of the service. Equipment and consumables should be located for ease of access by staff and located to support separation of clean and dirty flows. Access to the unit for delivery of supplies ('back of house' flows) should be separate from visitor flows to and from the unit.

Statewide policies for the storage of medication, fluids and vaccines must be adhered to.

Medications and IV fluids may be stored in the Clean Utility or in a dedicated Medication Room depending on local policies. A refrigerator will be required to store medication with a separate refrigerator for vaccines. Both units will be temperature monitored, linked to the building management system. Facility requirements relating to the preparation and storage of parenteral nutrition will require consideration.

Secure and accessible storage will be required for medical gases to support the management of therapy, transfers and evacuations.

The unit will also need to provide storage for clothing which includes bonnets, booties and many other clothing items. A laundry with washing machine, dryer and sorting area is often provided. A blanket-type warming system is also often provided to warm clothes prior to dressing the newborn.

A range of other storage bays and rooms will be required as noted in Appendix 5.1 Schedule of Accommodation.

2.2.12 Equipment Management, Storage, Recharging and Cleaning

The unit will usually clean and store its own equipment that may include:

- imaging equipment including general x-ray and ultrasound;
- incubators, open care centres and bassinets;
- cardiorespiratory support equipment including ventilators and CPAP devices; nitric oxide systems, cardiorespiratory monitors, ECG machines, pulse oximeters, radiant heaters, cooling blankets and trolleys for airway equipment;
- phototherapy units;
- syringe pumps;
- EEG monitors;
- transport equipment including incubator and medical gases;
- allied health equipment; and
- research equipment.

Equipment cleaning processes will require confirmation. Some services may use hydrogen peroxide vapour decontamination systems which may be considered in high-risk settings and during outbreaks when other disinfection options have been exhausted (NHMRC 2019). Design requirements will include the ability to seal rooms, appropriate ventilation systems and storage of equipment.

Storage may be divided into open plan equipment bay(s) located central to the nurseries for equipment that needs to be readily and frequently accessed.

All areas must be designed to:

- efficiently store and access equipment without causing damage; and
- provide both floor parking space and off-floor shelving with adequate power outlets for recharging battery-operated equipment.

Careful attention must be given to ventilation and temperature control where multiple items of heat-generating equipment are being charged, particularly in an enclosed room. Dirty to clean flows will be provided to ensure separation is achieved.

Depending on operational policies, optional inclusions within the store may include:

- a workstation for the nominated equipment nurse for inventory and ordering; and
- a work bench for a biomedical technician to undertake testing and minor repairs serviced with medical gases, power and voice / data outlets.

2.2.13 Staff Education, Training and Research

The approach to staff education, training and research for the Neonatal Care Unit and the overall hospital will inform the extent of associated facilities required, both within and external to the unit to support these functions.

This may include:

- some education / staff training and meeting spaces provided locally to enable staff to stay in the department, ensuring close access to respond to a clinical emergency;
- videoconferencing facilities;
- simulation capability, depending on the size and role of the service;
- staff work areas for those engaged in education and research; and
- support for trainees and students.

2.2.14 Volunteers

Volunteers are common in this type of unit and roles may include wayfinding, meet-and-greet, peer support, 'ward grandparents' and assistance with laundry. Suitable amenities should be provided to support volunteers, e.g. lockers.

2.3 PLANNING MODELS

2.3.1 Location

The unit should be located and oriented to avoid direct sun into the nurseries to minimise the need for critical sun protection. A southern aspect is preferred.

The unit should ideally be located on the same floor as or by direct lift access from the birthing unit and obstetric operating rooms (refer to Section 2.5 for further information).

A location adjacent to the Paediatric Intensive Care Unit may be desirable in a children's hospital with ready access to the Operating Suite.

Care must be taken to avoid placing the inpatient areas adjacent to noise sources such as plant rooms, lifts and public lobbies.

2.3.2 Bed Numbers and Mix

The number and mix of beds required will be determined by the Clinical Services Plan with consideration of:

- the role delineation for the unit;

- assumed occupancy rate;

- the ability to flex up and down to meet demand including surges in activity; and

- support for multiple births and retrievals.

2.3.3 Configuration of Beds

The arrangement of beds will:

- provide a level of privacy for parents while facilitating opportunities to interact with other parents;

- provide a sufficient number of single rooms to manage isolation for reasons of infection or immunosuppressed status, extremely unwell or dying newborns and specific congenital or medical conditions requiring extremely quiet environments; and

- group beds in bays or rooms of between two and four beds when shared approaches are adopted.

The appropriate mix of single enclosed rooms and open bays needs to be determined on a project by project bases depending on the role delineation and patient cohort to be accommodated.

The advantages of single rooms include:

- increased privacy, both acoustic and visual;

- greater opportunity for parental involvement;

- better infection prevention and control;

- a more appropriate environment for the provision of palliative care; and

- individual environmental control of noise, light, temperature.

Provision of dividing doors between pairs of single rooms may facilitate management of multiple births and ease of parental access but will reduce advantages relating to infection prevention and control.

The disadvantages of single rooms include:

- diminished physical observation;

- a lack of stimulation of newborns receiving limited time with parents (refer to Pineda et al 2013);

- staff may feel isolated with reduced line of sight to their colleagues;

- limited educational opportunities for staff;

- potential impacts on staffing and recurrent costs;

- reduced flexibility to accommodate multiple births;

- lack of overflow space when a high number of staff and family members need to be accommodated; and

- limiting opportunities for parents to socialise with other parents and obtain peer support thus creating a degree of isolation.

2.4   FUNCTIONAL AREAS

2.4.1   Unit Functional Zones

Functional zones include the following:

- entry, waiting and public areas;
- patient areas;
- clinical support areas;
- family support areas, including accommodation; and
- staff areas.

2.4.2   Entry, Waiting and Public Areas

The main public access to the unit should create a welcoming and positive first impression

Controlled access to the unit is required and may be provided via a dedicated reception area or video / intercom system. The provision of a reception area will depend on the arrangement of the unit and workforce profile.

The visitor's waiting area, located external to the unit, will require access to public amenities and a locker bay for items such as overcoats and umbrellas. Access to hand hygiene facilities at the entry to the unit is essential.

There should be easy wayfinding from the main entry point to patient and family support areas.

2.4.3   Patient Areas

Patient areas will be organised in groups of bed types, i.e. intensive care, high dependency and/or low dependency care. Intensive care and high dependency care beds will be a standard size and contiguous to ensure that there can be some flexibility of use.

Comfortable, purpose-built space should also be considered to optimally meet palliative care requirements. Where provided palliative care rooms should be provided in a quieter area of the unit with provision of comfortable, less clinical furnishings and appropriate art work.

Staff stations will be located to ensure that most bed spaces can be observed with a range of clinical support spaces located for direct access by staff.

2.4.4   Family Areas – General

Parents and siblings will spend significant periods of time visiting the unit. In order to improve their comfort and provide opportunities for them to care for their infant, a range of support space is required including the following:

- family lounge / dining including a beverage bay for preparation of light meals and beverages and which also provides opportunity for families to congregate and engage with each other;
- play area for children;
- easily accessible toilets and showers;
- parent education facilities and access to educational and other support materials;
- hot desk space to enable parents to undertake some work or keep in contact with other family members;
- lactation support including quiet space for breastfeeding and expressing, and facilities for cleaning associated equipment;
- access to food and drinks out-of-hours, e.g. vending machines;
- access to a domestic laundry. Machines may be incorporated into the equipment cleaning room if accessed by staff only; and

- facilities to support early discharge programs including parent / newborn accommodation.

The zone should have access to shared meeting and interview rooms on the unit.

Overnight rooms to support early discharge programs should be provided within the unit to enable parents looking after their infant(s) to have direct access to staff support. A number of overnight rooms located in close proximity to the unit will also be required for mothers that are breastfeeding their child full time, parents that live a significant distance from the unit and to provide access for families to rest space away from the critical care environment. The number of overnight rooms provided will depend on access to other accommodation options on the site, e.g. Ronald McDonald House and the volume of families who live a significant distance away.

2.4.5   Clinical Support

Clinical support space will include a range of bays and rooms to support milk preparation and storage; storage of clinical supplies, medications and equipment; facilities to clean and manage equipment; and other general operational support areas.

Where possible, the location of clinical support areas, especially storage, should be arranged such that frequently used items are located close-by.

2.4.6   Staff Areas

A range of staff support areas will be required including:

- work areas for administrative and research activities;
- telemedicine workroom for 'hub' services that will be used for discussions with colleagues, patient reviews and review of medical imaging, clinician performed ultrasound and other results;
- staff amenities including a staff room, toilets, lockers and a shower;
- education space; and
- an on-call room (depending on local policies).

While the nursing manager may be located within the clinical areas of the unit, other staff work areas should be located in a staff-only zone, clearly separated from family areas. If possible this staff-only zone will have its own controlled access, separate from the main entry.

A seminar room may be provided, depending on the role of the unit. This room must be easily accessed by other staff without the need to travel though clinical areas. A multifunctional skills lab can be invaluable for learning and practising simulated procedures. If provided, it should be equipped with a resuscitaire, incubator, ventilator, mannequin, a storage surface, and several chairs and medical gases. It may be separated from the seminar room by an operable wall. Alternatively, storage space may be located within the seminar room as the same room used for skills training.

2.5   FUNCTIONAL RELATIONSHIPS

2.5.1   External

Direct access is required from Neonatal Care Units to the birthing unit (not applicable to units in stand-alone children's hospitals) and the operating theatre complex performing obstetric emergency procedures. This needs to be via collocation of the units on the same floor or direct lift access, in the same building, to ensure optimal response times for time critical emergencies, e.g. attendance by staff to an emergency resuscitation; transport of a critically unwell infant from the birthing unit or theatres to the Neonatal Care Unit and to minimise movement / transport of an extremely ill preterm infant at risk of intraventricular haemorrhage (IVH).

Ready access is required to postnatal and antenatal inpatient units to optimise patient safety and given the high volume of patient and staff flows between units. Neonatal Care staff often provide postnatal unit care in emergencies and a high volume of infants admitted to a Neonatal Care Unit are from the postnatal units and require minimal transport distances to optimise their care.

Direct access is also required to the helicopter landing site and ambulance bays and ready access is also required to emergency departments and medical imaging services.

03 DESIGN

3.1 ACCESS

There will be a single public entry point to the unit. Separate access will be provided for patient transfers, staff and the movement of supplies and waste.

Consideration needs to be given to safe access for parents after hours.

Circulation routes through the unit will allow access and ease of movement for a mobile x-ray or ultrasound and a mother on a bed or trolley.

3.2 PARKING

Parents may need access to on-site parking for prolonged periods.

For information regarding staff parking, refer to AusHFG Part C Design for Access, Mobility, Safety and Security.

3.3 DISASTER PLANNING

Each unit will have operational plans and policies detailing the response to a range of internal and external emergency situations. This will require consideration of the placement of emergency alarms, the need for uninterrupted power supply (UPS) to essential clinical equipment, services such as emergency lighting, telephones, duress alarm systems and computers and the emergency evacuation of patients. The design of the unit needs to ensure there are strategies available to manage internal evacuation requirements.

For further information refer to local jurisdiction disaster management plans and:

- Part C: Design for Access, Mobility, Safety and Security; and
- Part B: Section 80 General Requirements.

3.4 INFECTION CONTROL

3.4.1 General

Good infection control practices in the newborn environment are essential.

An infection control risk assessment should be undertaken prior to concept design planning. Refer to local jurisdictional policies and procedures and to Part D: Infection Prevention and Control.

3.4.2 Hand Hygiene

Clinical hand basins should be provided at a ratio of one basin to two bed spaces in neonatal intensive care and high dependency care areas, and one basin to four bed spaces in low dependency care areas.

Each single room will contain a hand wash basin.

Hand basins should be located to ensure there is sufficient space to perform adequate decontamination without encroaching on the clinical patient zone.

Visitors and staff will have access to hand hygiene at the unit entry, in the family support areas and at each bed space.

Alcohol based hand rub dispensers should also be provided generally throughout the unit to supplement hand basins. In particular, these should be located in each bed space and at the unit entry.

3.4.3 Isolation Rooms

Isolation rooms will be provided for newborns with known infections and for newborns transferred in until their infectious status is known. Both standard isolation and negative pressure isolation will be required.

Requirements for isolation rooms will need to be confirmed through a risk assessment process which will include consideration of the role delineation of the health service and patient profile.

3.5 ENVIRONMENTAL CONSIDERATIONS

3.5.1 Acoustics

While noise is a normal part of infant development, numerous studies identify excessive noise as a primary stressor for babies, and staff of health care facilities, with newborns particularly disoriented by noise because their hearing is still developing.

Ambient noise levels should be monitored and not exceed an hourly level (L_{Aeq}) of 40-45 dB(A).

Noise control measures within a Neonatal Care Unit may include arranging beds in single rooms and in groups of two to four beds.

Should parent accommodation be provided, the location will need to ensure that noise arising from other areas within the unit does not interrupt sleep. Should babies be rooming-in prior to discharge, additional acoustic treatment may be required between rooms.

Refer to Australian / New Zealand Standards, 2000, AS/NZS 2107:2000 Acoustics - Recommended design sound levels and reverberation times for building interiors (SAI Global).

3.5.2 Lighting

All clinical areas should have controlled natural lighting for the development of circadian rhythms in infants.

Direct overhead ambient lighting in the newborn care space must be avoided as well as direct lighting outside the area that may be in the infant's line of sight to minimise danger or damage to the developing retina, visual pathways and developing brain.

Lights should be angled or designed to reduce reflection off the incubator canopy.

The bed space should have three separate light sources and controls including:

- general room ambient lighting - controlled by dimmer;
- individual work space lighting - not directly on newborn with controls to allow immediate darkening of any bed position to permit transilluminance; and
- observation / procedure light for every bed space.

Lighting must be colour-corrected to natural lighting. Ambient lighting levels in bed bays should be adjustable, through a range of at least 100 to 600 lux as measured at each bedside.

Refer to Australian / New Zealand Standards, 2009, AS/NZS 1680.0:2009 Interior lighting - Safe movement (SAI Global).

3.5.3 Natural Light

External windows are ideally provided throughout the unit, especially in patient areas and in the family lounge. Window covering will be needed to ensure that light can be moderated in patient areas.

3.5.4   Privacy

Neonatal care areas should be designed and configured to give staff the greatest ability to observe infants, however each bed space should have provision for visual privacy for the infant and their parents, particularly for families with an extremely ill or dying infant and for breastfeeding or expressing mothers.

Access to interview rooms and dedicated family areas will also support requirements for privacy.

3.5.5   Interior Décor

Colour selection relative to newborns is largely inconsequential, because of their lack of visual perception, but with regard to adults, studies have indicated persons in high anxiety situations prefer pastels rather than saturated colours. Colour schemes should not interfere with accurate assessing of the newborns skin colour.

The art strategy for the unit should be inspirational and offer hope.

3.5.6   Signage and Wayfinding

For information refer to:

- Part C: Design for Access, Mobility, Safety and Security; and
- Department of Health, NSW, 2009, Technical Series 2 - Wayfinding for Health Facilities.

3.6   SPACE STANDARDS AND COMPONENTS

3.6.1   Ergonomics

The layout of bed spaces will ensure staff and parents can easily access the medical service panels and/or pendants.

Selected equipment, such as incubators, are bulky and difficult to manoeuvre. These items must be easily retrieved and transferred to the bed space.

The design of the unit will ensure patients, staff, visitors and maintenance personnel are not exposed to avoidable risks of injury.

For more information refer to Part C: Design for Access, Mobility, Safety and Security.

3.6.2   Doors and Corridors

All entry points, doors or openings, should be a minimum of 1200mm wide, unobstructed to permit the manoeuvring of beds and other equipment. Larger openings may be required for special equipment as determined by local requirements.

The size of incubators is often enlarged by the addition of monitors, other equipment and several staff, making movements more difficult than in other areas of the hospital.

It is important that adequate circulation space is provided for the safe and efficient movement of these beds.

Corridors throughout neonatal intensive / high dependency care units should be 2100mm minimum clear width. When these units are collocated with low dependency care, the same corridor width should be retained to enable future flexibility of use.

Centre aisles between facing beds in open plan environments must be a minimum width of 2100mm in intensive / high dependency care areas and at least 1800mm in low dependency care areas.

3.6.3 Windows

The location and design of windows in patient areas requires careful planning to provide maximum sun protection. Shading devices must be neutral in colour or opaque to minimise colour distortion from transmitted light.

3.7 SAFETY AND SECURITY

3.7.1 Safety

Bed spaces must be designed to allow all monitoring equipment to be readily visible and within safe reach of staff. This may require special mounting devices for monitors (articulated arms), rails or shelving at appropriate height and position. The height of monitors and other equipment should be adjustable.

Also refer to Part C Design for Access, Mobility, Safety and Security.

3.7.2 Security

The security system should protect the physical safety of newborns, families and staff in the unit and in particular should minimise any risk of abduction.

There will be a single controlled entry for the public and visitors. Consideration may be given to the use of closed circuit television with phone or intercom for after-hours access. In some cases, parents may be issued with access control cards to facilitate access out of hours. Emergency exits will be alarmed.

A newborn security tag system may be used where available.

Ready access to duress alarms for staff will be required especially at receptions and staff stations.

3.8 FINISHES

3.8.1 General

Finishes in this context refer to walls, floors, windows and ceilings.

Refer to Part C and the Standard Components for Neonatal Care specific rooms.

3.8.2 Floor Finishes

Refer to local jurisdictional policies and to:

- AusHFG Part C;
- AusHFG Part D; and
- Department of Health, NSW, 2009, Technical Series TS7 - Floor Coverings in Healthcare Buildings.

3.8.3 Wall Protection

Adequate wall protection should be provided to areas that will regularly be subjected to damage. Particular attention should be given to areas where beds or trolley movement occurs such as corridors, bed space walls, treatment areas, equipment storage bay / rooms and linen trolley bays.

3.8.4 Ceiling Finishes

Sound-absorbing, acoustic finishes are required in all clinical areas and main support areas.

Also refer to Part C: Design for Access, Mobility, Safety and Security.

3.9 FIXTURES, FITTINGS AND EQUIPMENT

3.9.1 Definition

The Room Data and Room Layout Sheets in the Australasian Health Facility Guidelines contain standard rooms as described in this HPU.

Refer to:

- Part C: Section 710, Space Standards and Dimensions; and
- AusHFG Standard Components for Neonatal Care specific rooms.

3.10 BUILDING SERVICE REQUIREMENTS

3.10.1 Information Communications and Technology (ICT) Systems

ICT is a key enabler for Neonatal Care Units to optimise patient care and service efficiencies. ICT systems necessary to support clinical and operational requirements should be assessed during the planning and design process to ensure an appropriate level of capability is provided that also supports future flexibility.

There will be facilities for x-ray viewing (using PACS); clinician performed ultrasound viewing; and a local Neonatal Information System will operate at each bed bay.

An electronic medical record can be expected within the life span of the unit. Design should anticipate this eventuality to ensure that its introduction does not cause major disruption to the environment or functioning of the unit. Consideration needs to be given as to the method and location of entering and retrieving patient information. This may occur at the bedside, mobile units / devices or at staff stations. Access at the patient bedside may be provided through wall mounted computers, workstations on wheels and/or other mobile devices.

Telemedicine is becoming increasingly common and important for clinical operations and education purposes. Allowance should be made for connection of critical care telemedicine equipment in all treatment areas. A telemedicine strategy will need to be considered in the early stages of planning that is consistent with jurisdictional approaches and service networking arrangements.

There must be systems for optimal fail-safe communications between staff, and for parents to communicate by telephone with bed side staff. This will include an emergency call system and nurse assist system.

Parents / family members should have access to Wi-Fi and phone charging capability.

Increasingly, technology is provided as a means of connecting families with other friends and family, e.g. "streaming" video of the newborn.

3.10.2 Telephones

Hospital telephones located in patient areas should have a light call indicator and low ringing tones to minimise noise. Cordless phones are preferred.

The use of mobile phones at the bed side should similarly be either prohibited or ringing tones switched to silent.

A telephone outlet should be provided to each bed bay.

3.10.3 Clocks

A clock must be clearly visible from each bed space. This may be via read-out on the cardiac monitor. The reception, staff station and all treatment areas must have a synchronised clock system.

3.10.4 Arrangements for Medical Services

Medical services may be provided via a pendant or wall mounted.

Ceiling-suspended pendants with single or double articulated arm provide flexibility but occupy more space around the bed, may interrupt natural light and can appear intimidating. However various items of equipment can be accommodated on the pendant which frees up floor space as well as space at the back of the incubator for ease of staff movement.

Wall mounted services are more cosmetically pleasing, less intrusive in the bed space, less intimidating, preserve all available natural light and less expensive. However this approach requires more floor space for equipment and may provide less flexibility regarding the location of services.

Regardless of which option or mix of options is selected, the arrangement of outlets must be identical at each bed to ensure that staff can be familiar with their work zone wherever they are.

Requirements are described in the AusHFG Standard Components.

3.10.5 Electrical Services

All electrical systems within the intensive care and high dependency care areas will be cardiac protected in bed bays, rooms and other treatment space used for patient care. Body protection is required in low dependency care environments.

Uninterruptible power supply (UPS) must be available to provide continuous emergency power to intensive care equipment in accordance with local engineering services guidelines.

3.10.6 Use of Nitric Oxide

Nitric oxide (a vasodilator) is being increasingly used in the treatment of very premature newborns. It is usually provided by portable cylinder as required. It may be reticulated from a local manifold, however this is not recommended due to the associated cost.

Secure storage for nitric oxide cylinders will be required.

04 COMPONENTS OF THE UNIT

4.1 STANDARD COMPONENTS

Rooms / spaces are defined as:

- *standard components (SC)* which refer to rooms / spaces for which room data sheets, room layout sheets (drawings) and textual description have been developed;

- *standard componen*ts – derived rooms are rooms, based on a SC but they vary in size. In these instances, the standard component will form the broad room 'brief' and room size and contents will be scaled to meet the service requirement;

- *non-standard components* which are unique rooms that are usually service-specific and not common.

The standard component types are listed in the attached Schedule of Accommodation.

The current Standard Components can be found at:
www.healthfacilityguidelines.com.au/standardcomponents

4.2 NON-STANDARD COMPONENTS

Information relating to Non-Standard components is detailed below.

4.2.1 Neonatal Room – Intensive Care, Isolation, Standard and Negative Pressure

Description and Function

Isolation rooms will be needed in each Neonatal Care Unit as part of the total complement of beds. Neonatal Units that have a high number of admissions from outside hospitals such as those in paediatric hospitals may require more rooms. Isolation rooms should have the ability to provide support to the most complex patients.

At least one of these rooms must be Class N - negative pressure ventilation with adjoining anteroom.

Rooms may be used as standard rooms when not occupied by an infectious newborn. All rooms will have a dedicated Type A hand wash basin.

Location and Relationships
These rooms will be located on the periphery of the unit as newborns must not travel through Inpatient Areas to reach the bed space.

Considerations
These rooms should be fitted-out to the standard of a Neonatal Intensive Care bed space to ensure that flexible use is possible.

4.2.2 Neonatal Room – Palliative Care

Description and Function

One room may be designated as a purpose built space for the palliative care of dying infants. However, the room should be able to accommodate other infants when not required for this purpose.

Location and Relationships
This room should be located in a quieter area of the unit with consideration of appropriate access for family members.

Considerations

The Newborn Room – Palliative Care should be designed with comfortable, less clinical furnishings, appropriate décor and art work.

Access to facilities for bathing and laying out the baby is required.

4.2.3 Family Bereavement Room

Description and Function

The family bereavement room is provided to enable parents to stay with their infant receiving palliative care.

Location and Relationships

The room should be collocated with the Neonatal Room – Palliative Care. Discreet access for additional family members may be considered.

Considerations

The Family Bereavement Room should provide comfortable with non-clinical furnishings and including the amenity for parents to sleep overnight in the room with access to a collocated ensuite.

It should be designed to be culturally appropriate and meet the spiritual needs of families.

4.2.4 Bathing and Examination Area

Description and Function

This room provides for assisted bathing of newborns with a collocated examination area. In addition, a range of parent education can occur in this space.

Facility requirements include:

- a separate baby bath inset into a bench with a shower hose;
- examination bench with over-head light;
- storage;
- oxygen and suction;
- a clear floor space that can accommodate mats to enable newborns to have tummy time; and
- a hand wash basin.

Fixed baths should not be provided in patient care areas, i.e. in the rooms or bays, due to infection control risks associated with microorganisms found in water and drains.

In addition, hand wash basins in bathrooms should not be used as a baby bath.

Location and Relationships

Locate near the Staff Station.

Considerations

The room should be maintained at a temperature that ensures that newborns are kept warm.

4.2.5 Procedure Room

Description and Function

This room will be equipped for:

- resuscitation;
- laser therapy for retinopathy of prematurity; and
- other procedures and/or neonatal surgery as required.

The Procedure Room may also double as a consult / treatment room for members of the multidisciplinary team.

Location and Relationships

Central location close to but away from Inpatient Areas.

Considerations

- Laser screening and in-use warning lights.

- Radiant heater.

- Pendant and gases as per a neonatal intensive care bay.

4.2.6   Milk Preparation / Storage Room

Description and Function

The Milk Preparation / Storage Room provides a wet area to make up feeds including additives to breast milk and formula.

The storage of milk in refrigerators and freezers will also be provided in this area.

This is a staff only area and should be a lockable room. Requirements include:

- refrigerators;

- freezers;

- bench space for preparation and to accommodate computer and barcoding equipment for human milk management systems;

- a sink to dispose of unused milk products;

- a hand wash basin, Type B; and

- storage.

Considerations

It is essential that each newborn receives the right feed. The refrigerator should provide separation and all feeds must be clearly labelled and identifiable.

4.2.7   Milk Clean Up Room

Description and Function

A room accessed by mothers to clean equipment associated with breastfeeding, e.g. breast pumps.

The room will need a sink, storage and bench space for preparation.

Location and Relationships

To be located near the Human Milk Storage Room.

Considerations

The space should only be used by the immediate family.

An external outlook is desirable.

Internet access may be considered.

4.2.8   Family Lounge

Description and Function

The family lounge provides parents the opportunity to have a break from the clinical environment and engage and interact with other families.

Location and Relationships

Located in the Family Area

Considerations

The family lounge needs to include a beverage bay for the preparation of light meals and beverages.

Access to a children's play area and toilets and showers is also essential.

Access to natural light / an external outlook is highly desirable.

4.2.9   Patient Resource Area

Description and Function

A quiet room to be used by parents to sit and read or use computers. Comfortable seating and a desk will be required.

Location and Relationships

Located in Family Area.

Appropriate provision for recharging of mobile devices.

Considerations

It is likely that many parents will want to connect laptops and other devices.

4.2.10   Parent and Infant Room

Description and Function

Limited overnight rooms on the unit are required for activities such as care-by-parent prior to discharge (rooming in or transitional care).

The number of rooms provided will depend on the unit's practice pattern, the size of the region served and other available options.

Room requirements will include:

- twin beds convertible to a double / queen bed plus space for an infant bassinet(s);
- direct access to basin, toilet and shower facilities;
- telephone and emergency call facilities;
- a television (may be used for recreational and educational purposes); and
- access to Wi-Fi and recharging outlets for mobile devices.

Location and Relationships

The newborns in these rooms will still be classified as inpatients, therefore the rooms must be within the secure area of the unit and adjacent to the other clinical areas.

Considerations

If newborns are rooming-in prior to discharge, it may be better to not equip the room with medical gases but instead simulate using equipment that will be used at home.

4.2.11   Staff Workroom - Telehealth

Description and Function

This room will accommodate several functions include telehealth, i.e. viewing patients remotely, discussing cases with colleagues at "spoke" sites, and viewing PACS images.

The room will accommodate up to two to three staff.

Location and Relationships

Located in Staff Area, alongside other meeting rooms.

Considerations

Dimmable lighting required.

05 APPENDICES

5.1 SCHEDULE OF ACCOMMODATION

The application of the schedule of accommodation below will require confirmation of the total neonatal care bed capacity requirements through detailed clinical services planning.

The schedule of accommodation provided is based on the following indicatively sized Neonatal Care units / pods:

- 12 bed low dependency care unit / pod (may be referred to as special care nursery);
- 16 high dependency care pod; and
- 16 bed Neonatal Intensive Care Unit.

A number of pods may be combined with shared access to entry / waiting, clinical support, family support and staff areas. The number and size of support areas will require adjustment to reflect the total bed numbers, the arrangement of beds and staffing profile, as noted in the schedule of accommodation below.

The 'Room / Space' column describes each room or space within the unit. Some rooms are identified as 'Standard Components' (SC) or as having a corresponding room which can be derived from a SC. These rooms are described as 'Standard Components –Derived' (SC-D). The 'SD/SD-C' column identifies these rooms and relevant room codes and names are provided.

All other rooms are non-standard and will need to be briefed using relevant functional and operational information provided in this HPU.

In some cases, Room / Spaces are described as 'Optional' or 'o'. Inclusion of this Room / Space will be dependent on a range of factors such as operational policies or clinical services planning.

ENTRY, WAITING and PUBLIC AMENITIES

AusHFG Room Code	Room / Space	SC / SC-D	Neonatal Low Dependency Care Pod / Unit 12 beds		Neonatal Intensive / High Dependency Care Pod 16 beds		Neonatal Care Unit 48 beds (3 pods)		Remarks
			Qty	m2	Qty	m2	Qty	m2	
RECL-12	Reception / Clerical	Yes	Shared		Shared		1	12	Adjust to meet overall size of unit. Provision of reception at entry to unit depends on arrangement of unit and workforce profile. May also accommodate volunteers.
STPS-8	Store - Photocopy / Stationery	Yes	Shared		Shared		1	8	
WAIT-20	Waiting	Yes	1	8	1	10	1	20	Adjust to meet overall size of unit and local requirements. External to unit, visitors also encouraged to access centralised hospital visitor amenities. Dedicated parent support areas also located within unit.
BVM-3	Bay - Vending Machine	Yes	1	2 (o)	1	2	1	2	May be shared with adjacent services.
BWD-1	Bay - Water Dispenser	Yes	1	1 (o)	1	1	1	1	
WCPU-3	Toilet - Public	Yes	1	3	1	3	3	3	Number dependent on size of unit and collocation with other services.
WCAC	Toilet - Accessible	Yes	1	6 (o)	1	6 (o)	1	6 (o)	Include if not located nearby.
PAR	Parenting Room	Yes	1	6 (o)	1	6 (o)	1	6 (o)	Include if not located nearby.
PROP-2	Property Bay		1	1	1	1	1	2	External to the unit for visitors' use for coats, bags, prams etc. Locate adjacent to reception.
CONS	Consult Room	Yes			1	14	3	14	Number dependent on local requirements. Multifunction assessment rooms. Will require heat table and scales.
MEET-L-20	Meeting Room	Yes					1	20 (o)	Multifunctional meeting / education room for families. Culturally appropriate design to meet local requirements. Video/teleconference facilities required.
	Volunteer's Workroom	Yes					1	12	Includes storage for volunteers.
	Discounted Circulation			25%		25%		25%	

Visitors will have access to hand hygiene at the unit entry, in the family support areas and at each bed space.

PATIENT AREAS

AusHFG Room Code	Room / Space	SC / SC-D	Neonatal Low Dependency Care Pod / Unit 12 beds		Neonatal Intensive / High Dependency Care Pod 16 beds		Neonatal Care Unit 48 beds (3 pods)		Remarks
			Qty	m2	Qty	m2	Qty	m2	
NBLD	Neonatal Bay - Low Dependency Care	Yes	10	12.5			20	12.5	Area excludes basins.
NBIC-HD	Neonatal Bay - Intensive Care / High Dependency	Yes		16.5	10	16.5	12	16.5	Area excludes basins.
	Neonatal Room - Intensive Care, Isolation, Negative Pressure			17	1	17	3	17	Includes basin. Number of N class rooms dependent on local infection control requirements.
	Neonatal Room - Isolation, Standard		1	17	4	17	12	17	Includes basin.
	Neonatal Room - Palliative Care		1	17	1	17	1	17	Designed appropriately for palliative care with collocation of family bereavement room.
BHWS-A	Bay - Handwashing, Type A	Yes	3	1	5	1	11	1	Type A basins. Assigned at a rate of 1:2 in ICU/HDU and 1:4 in low dependency.
ANRM	Anteroom	Yes			1	6	3	6	As required for Class N Isolation Rooms
	Family Bereavement Room		1	15	1	15	1	15	Family bereavement / counselling / multipurpose area. Recommend collocation with palliative care room.
OVES	Overnight Stay - Ensuite		1	4	1	4	1	4	Attached to multipurpose family room
	Procedure Room	Yes			1	20	1	20	For resus, laser therapy, other.
INTF	Interview Room	Yes	1	12	1	12	1	12	
	Bathing / Examination Area		1	10	1	10	1	15	Shared bath area not utilised for babies requiring intensive care given they are too unwell to be transferred.
SSTN-14	Staff Station	Yes	1	12	1	16	3	16	Number dependent on layout. Recommend 20m2 for Children's Hospitals given number of subspecialty teams.
OFF-CLN	Office - Clinical Workroom	Yes	1	15	1	20	1	20	Recommend 24m2 for Children's Hospitals given number of subspecialty teams
BPATH	Bay - Pathology	Yes	1	2	1	2	1	2	
BPTS	Bay - Pneumatic Tube		1	1	1	1	1	1	
BRES	Bay - Resuscitation	Yes	1	1.5	1	1.5	3	1.5	1 per pod. For resus equipment. Locate in a non public area with ease of access to resus trolley.
BMEQ-4	Bay - Mobile Equipment, 4m2	Yes	1	4	1	4	3	4	General mobile equipment storage eg. trolleys
BMEQ-6	Bay - Mobile Equipment, 6m2	Yes			1	6	1	6	X-Ray / Ultrasound
BLIN	Bay - Linen	Yes	1	2	1	2	1	2	
BS-1	Bay - Storage		1	1	1	1	1	1	Storage for baby clothes
	Discounted Circulation			35%		35%		40%	

CLINICAL SUPPORT

| AusHFG Room Code	Room / Space	SC / SC-D	Neonatal Low Dependency Care Pod / Unit 12 beds		Neonatal Intensive / High Dependency Care Pod 16 beds		Neonatal Care Unit 48 beds (3 pods)		Remarks
			Qty	m2	Qty	m2	Qty	m2	
	Milk Preparation / Storage Room		1	8	1	10	1	14	Adjust to meet overall size of unit. Includes refrigerators and freezers. Staff only area. Bench space for preparation and computer and barcoding equipment for milk management systems. Includes formula preparation and storage.
	Milk Clean Up Room		1	8	1	8	1	8	Adjust to meet overall size of unit. Used to sterilise expressing equipment.
CLUR-14	Clean Utility / Medication Room	Yes	1	10	1	12	1	14	
STDR-10	Medication Room	Yes					1	10	Include medications, vaccine fridges, TPN
CLN-10	Store - Clean	Yes	1	12	1	16	1	48	Clean stock. Assumes compactus. HEPA filtration not required.
STEQ-20	Store - Equipment	Yes	1	18	1	32	1	96	
	Biomedical Workroom				1	8	1	20	For set up and servicing.
	Store - Gases				1	3	1	5	
	Store - Transport Equipment		1	8	1	12	1	14	
STGN-8	Store - Retrieval Equipment	Yes	1	tbc	1	tbc	1	tbc	Space requirements will depend on the role of the retrieval service.
DTUR-10	Dirty Utility	Yes	1	8	1	10	1	12	
ECL-14	Equipment Clean-Up	Yes	1	8	1	10	1	14	For cleaning beds, incubators, dismantling & cleaning respiratory equipment. Include area for leaving dirty equipment ready for cleaning with approproiate dirty to clean flows.
CLRM-5	Cleaner's Room	Yes	1	5	1	5	2	5	
DISP-10	Disposal Room		1	8	1	10	1	16	
	Discounted Circulation			35%		35%		40%	

FAMILY SUPPORT AREAS

AusHFG Room Code	Room / Space	SC / SC-D	Neonatal Low Dependency Care Pod / Unit 12 beds		Neonatal Intensive / High Dependency Care Pod 16 beds		Neonatal Care Unit 48 beds (3 pods)		Remarks
			Qty	m2	Qty	m2	Qty	m2	
	Family Lounge		1	12	1	16	1	24	Include beverage bay.
PLAP-10	Play Area - Paediatric	Yes			1	6	1	10	For siblings.
	Parent Resource Area				1	9	1	9	Quiet room for use of laptop, literature or other resources
	Feeding Room	Yes	1	10	1	10	1	12	For expressing milk & breast feeding
LAUN-PT	Laundry - Domestic	Yes	1	4	1	6	1	6	Baby and parent clothing. Incorporate linen cupboard for small items
	Parent / Infant Room		1	15	2	15	6	15	Rooming in, to accommodate parent/s and infants.
OVBR	Overnight Stay - Bedroom		1	10 (o)	1	10 (o)	5	10 (o)	Other parent accomodation - number of rooms will be dependent on rural / regional catchment and access to other accommodation eg Ronald McDonald House.
OVES	Overnight Stay - Ensuite	Yes	2	4	3	4	9	4	1:1 for parent / infant rooms and shared between 2 rooms for other overnight rooms. Provision of an accessible ensuite will be needed.
WCPU-3	Toilet - Public	Yes			2	3	2	3	Number dependent on size of unit. To be located in ready access to inpatient areas
PROP-2	Property Bay	Yes			1	1	1	3	
	Discounted Circulation			25%		25%		25%	

STAFF AREAS

AusHFG Room Code	Room / Space	SC / SC-D	Neonatal Low Dependency Care Pod / Unit 12 beds		Neonatal Intensive / High Dependency Care Pod 16 beds		Neonatal Care Unit 48 beds (3 pods)		Remarks
			Qty	m2	Qty	m2	Qty	m2	
OFF-S12	Office - Single Person, 12m2	Yes		12		12		12	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
OFF-S9	Office - Single Person, 9m2	Yes		9		9		9	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
	Office - Workstation, 5.5m2			5.5		5.5		5.5	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
	Office - Workstation, 4.4m2			4.4		4.4		4.4	Allocation will be dependent on staff profile and jurisdictional policies relating to staff work areas.
STPS-8	Store - Photocopy / Stationery		1	4	1	8	1	8	
MEET-L-30	Meeting Room, 30m2	Yes					1	30	May be shared across a number of pods.
MEET-L-20	Meeting Room, 20m2	Yes			1	20	1	20	May be used for simulation training. Provide medical gases.
MEET-L-15	Meeting Room, 15m2	Yes	1	15					
SRM-18	Staff Room	Yes	1	15	1	20	1	40	
	Staff Workroom - Telehealth				1	9	1	12	
CHST-20	Change - Staff (Male / Female)	Yes	1	8	1	10	1	22	Includes toilets, showers, lockers; size depends on the staffing per shift. (Female)
CHST-20	Change - Staff (Male / Female)	Yes	1	6	1	8	1	18	Includes toilets, showers, lockers; size depends on staffing per shift. (Male)
WCAC	Toilet - Accessible	Yes	Shared		Shared		1	6	
OVBR	Overnight Stay - Bedroom	Yes			1	10 (o)	1	10 (o)	Requirement depends on staffing arrangements. Often provided centrally. Access to toilets required e.g. Staff Change Rooms
	Discounted Circulation			25%		25%		25%	

5.2 FUNCTIONAL RELATIONSHIPS / DIAGRAMS

The following diagram sets out the relationships between zones in a Neonatal Care Unit.
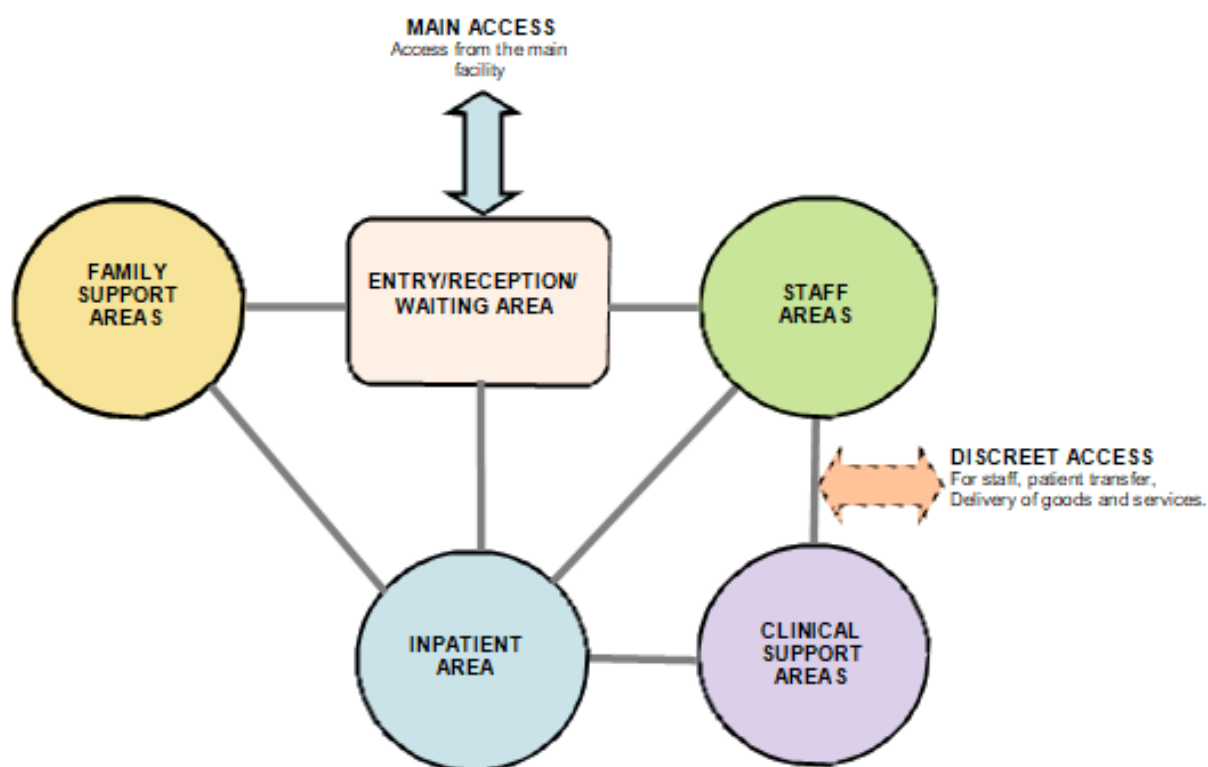
5.3   REFERENCES

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